

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An optical communication device comprising:

a continuous time filter having an adjustable bandwidth, wherein the continuous time filter is configured to reduce ~~reduces~~ channel induced pre-cursor interference ~~distortion~~ in an incoming data signal, ~~wherein the continuous time filter generates and generate~~ a filtered incoming data signal; ~~[[and]]~~

a decision feedback equalizer, coupled to the continuous time filter, ~~for reducing and~~ configured to reduce post-cursor~~inter-symbol~~ interference in the filtered incoming data signal and output a compensated signal and equalized data; and

a bandwidth controller configured to receive the compensated signal from the decision feedback equalizer and estimate a bandwidth error of the continuous time filter based thereon, the bandwidth controller further configured to generate a control signal based on the bandwidth error and to adjust the bandwidth of the continuous time filter using the control signal, and thereby reduce the bandwidth error as determined from the decision feedback equalizer.

2. (Currently Amended) The communication device of claim 1 wherein the continuous time filter is configured to pre-distort the incoming data signal, based on the control signal, to thereby improve an operation of the decision feedback equalizer~~further comprising a bandwidth controller that estimates bandwidth error of the continuous time filter and generates a control signal to adjust the bandwidth of the continuous time filter to reduce the bandwidth error.~~

3. (Original) The communication device of claim 1 wherein the continuous time filter comprises at least one cascaded low pass filter.

4. (Currently Amended) The communication device of claim 3 wherein each of the at least one cascaded low pass filter comprises a differential pair of transistors having adjustable capacitive loads coupled to outputs of the differential pair of transistors ~~for adjusting and configured to~~ adjust the bandwidth of the at least one cascaded low pass filter in response to the control signal.

5. (Currently Amended) The communication device of claim ~~[[2]]~~ 1 wherein the decision

feedback equalizer comprises a summer that is configured to generate the compensated signal
~~generates a combined signals~~ by combining an equalized feedback signal with the filtered
incoming data signal ~~to reduce the inter-symbol interference in the filtered incoming data signal.~~

6. (Currently Amended) The communication device of claim 5 wherein the bandwidth controller comprises:

an analog to digital converter, coupled to the summer, that is configured to digitize
~~digitizes the combined~~ compensated signal;

a digital limiter, ~~coupled~~ configured to receive the digitized ~~combined~~ compensated
signal from the analog to digital converter, ~~that generates and~~ configured to generate a binary
signal from the digitized ~~combined~~ compensated signal; and

a combiner configured to subtract ~~that subtracts~~ the digitized ~~combined~~ compensated
signal from the binary signal to generate the control signal ~~a bandwidth error signal.~~

7. (Currently Amended) A ~~communication system~~ receiver comprising:

~~a transmitter transmitting an information signal over a communication media; and~~
~~a receiver coupled to the communication media for receiving the transmitted information~~
~~signal,~~

~~wherein the receiver comprises:-~~

a continuous time filter having an adjustable bandwidth, wherein the continuous time
filter ~~reduces~~ is configured to reduce channel induced distortion in ~~a received~~ information signal
received from a communications channel as a function of the adjustable bandwidth, ~~wherein the~~
~~continuous time filter generates~~ and is further configured to generate a filtered information
signal; ~~[[and]]~~

a decision feedback equalizer ~~coupled to the continuous time filter for reducing~~
configured to receive the filtered information signal and to reduce inter-symbol interference in
the filtered information signal to produce equalized data, and further configured to output a
compensated signal; and

a bandwidth controller configured to receive the compensated signal and to adjust the
adjustable bandwidth based thereon, and thereby to tune a frequency response of the continuous

time filter to approximate an inverse of at least a portion of the frequency response of the communication channel.

8. (Currently Amended) The ~~communication system receiver~~ of claim 7 ~~further comprising a~~ wherein the bandwidth controller ~~that estimates~~ is configured to estimate a bandwidth error of the continuous time filter based on the compensated signal, and ~~generates a control signal to~~ adjust the adjustable bandwidth of the continuous time filter based thereon to reduce the bandwidth error.

9. (Currently Amended) The ~~communication system receiver~~ of claim 7 wherein the continuous time filter comprises at least one cascaded low pass filter.

10. (Currently Amended) The ~~communication system receiver~~ of claim 9 wherein each of the at least one cascaded low pass ~~filter~~ filters comprises a differential pair of transistors having adjustable capacitive loads coupled to outputs of the differential pair of transistors ~~for adjusting~~ and configured to adjust the bandwidth of the low pass filter.

11. (Currently Amended) The ~~communication system receiver~~ of claim 9 wherein the decision feedback equalizer comprises:

a summer that ~~generates~~ is configured to generate a combined the compensated signal by combining an equalized feedback signal with the filtered information signal ~~to reduce the inter-symbol interference in the filtered incoming data signal.~~

12. (Currently Amended) The ~~communication system receiver~~ of claim 11 wherein the bandwidth controller comprises:

an analog to digital converter, coupled to the summer, that is configured to digitize digitizes the ~~combined~~ compensated signal;

a digital limiter, coupled to receive the digitized ~~combined~~ compensated signal from the analog to digital converter, ~~that generates~~ and configured to generate a binary signal from the digitized ~~combined~~ compensated signal; and

a combiner that ~~subtracts~~ is configured to subtract the digitized ~~combined compensated~~ signal from the binary signal to generate a bandwidth error signal used in adjusting the adjustable bandwidth of the continuous time filter.

13. (Currently Amended) The ~~communication system receiver~~ of claim 7 wherein the receiver further comprises an optical detector ~~for converting~~ configured to convert the received information signal to an electrical signal.

14. (Currently Amended) A ~~communication system receiver~~ comprising:

~~transmission means for transmitting an information signal over a communication media;~~
receiver means coupled to ~~[[the]]~~ communication media for receiving the transmitted information signal, ~~wherein the receiver means comprises:~~ comprising

filter means for filtering the received information signal,

bandwidth control means for adjusting the bandwidth of the filter means to reduce channel induced distortion in the received information signal, and

equalizer means coupled to the filter means for reducing inter-symbol interference in the filtered information signal.

15. (Currently Amended) A method for ~~communicating~~ receiving an information signal, comprising:

filtering a ~~first~~ current symbol of an information signal using a first filter bandwidth to obtain a filtered information signal;

equalizing the filtered information signal using a previous symbol of the information signal;

generating a bandwidth error signal from at least the equalized filtered information signal;

adjusting the first filter bandwidth to a second filter bandwidth; and

filtering a ~~second~~ next symbol of the information signal with ~~[[a]]~~ the second filter bandwidth to reduce the bandwidth error signal.

16. (Currently Amended) An optical communication device comprising:

a continuous time filter having at least one cascaded low pass filter, each of the at least one cascaded low pass filter having an adjustable bandwidth, wherein the continuous time filter is configured to ~~reduce~~ reduces channel induced ~~pre-cursor interference distortion~~ in an incoming data signal, ~~wherein the continuous time filter generates and generate~~ a filtered incoming data signal; ~~[[and]]~~

a decision feedback equalizer, coupled to the continuous time filter, ~~for reducing and~~ configured to reduce post-cursor~~inter-symbol~~ interference in the filtered incoming data signal and output a compensated signal; and

a bandwidth controller configured to receive the compensated signal from the decision feedback equalizer and estimate a bandwidth error of the continuous time filter based thereon, the bandwidth controller further configured to generate a control signal based on the bandwidth error and to adjust the bandwidth of the at least one cascaded low pass filter using the control signal, and thereby reduce the bandwidth error as determined from the decision feedback equalizer.

17. (Currently Amended) The communication device of claim 16 wherein the continuous time filter is configured to pre-distort the incoming data signal, based on the control signal, to thereby improve an operation of the decision feedback equalizer~~further comprising a bandwidth controller that estimates bandwidth error of the continuous time filter and generates at least one control signal to adjust the bandwidth of the at least one cascaded low pass filter to reduce the bandwidth error.~~

18. (Currently Amended) The communication device of claim 16 wherein each of the at least one cascaded low pass filter comprises a differential pair of transistors having adjustable capacitive loads coupled to outputs of the differential pair of transistors ~~for adjusting and~~ configured to adjust the bandwidth of the at least one cascaded low pass filter in response to the control signal.

19. (Currently Amended) The communication device of claim 17 wherein the decision feedback equalizer comprises a summer that is configured to generate the compensated signal by combining~~combines~~ an equalized feedback signal with the filtered incoming data signal ~~to reduce the inter-symbol interference in the filtered incoming data signal.~~

20. (Currently Amended) The communication device of claim 19 wherein the bandwidth controller comprises:

an analog to digital converter, coupled to the summer, that is configured to digitize ~~digitizes the combined~~ compensated signal;

a digital limiter, ~~coupled~~ configured to receive the digitized ~~combined~~ compensated signal from the analog to digital converter, ~~that generates and configured to generate~~ a binary signal from the digitized ~~combined~~ compensated signal; and

a combiner configured to subtract ~~that subtracts~~ the digitized ~~combined~~ compensated signal from the binary signal to generate the control signal~~a bandwidth error signal.~~